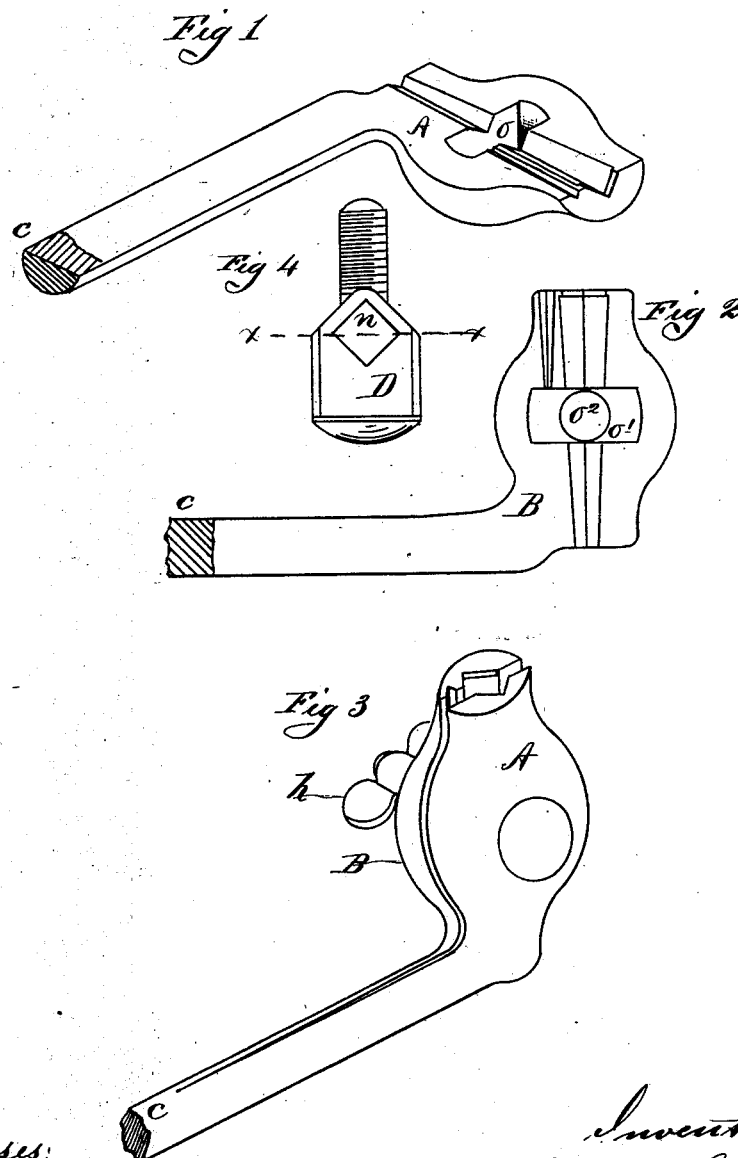


(No Model.)

G. L. HOLT.
Bit Brace.

No. 235,532.

Patented Dec. 14, 1880.



Witnesses:
Wm H Chapin,
Chas Pitt.

Inventor:
Gardner L Holt.
By Henry A Chapin,
Atty.

UNITED STATES PATENT OFFICE.

GARDNER L. HOLT, OF SPRINGFIELD, MASSACHUSETTS.

BIT-BRACE.

SPECIFICATION forming part of Letters Patent No. 235,532, dated December 14, 1880.

Application filed May 12, 1880. (No model.)

To all whom it may concern:

Be it known that I, GARDNER L. HOLT, a citizen of the United States, residing at Springfield, county of Hampden and State of Massachusetts, have invented new and useful Improvements in Bit-Braces, of which the following is a specification.

My invention relates to the devices employed in bit-braces for securing the tapering shank of a boring or other tool to or between the jaws of the brace; and the object thereof is to provide an improved screw-power fastening for clamping the jaws of a bit-brace upon the tool-shank, by means of which the clamping force is applied with great power directly opposite to and upon each side of the axial line of the shank, and whereby a more rigid gripe upon the tool is obtained than has been possible heretofore in constructions of this class.

I attain the above-named objects by the construction and devices illustrated in the annexed drawings, in which—

Figure 1 is a perspective view of the inner side of one jaw of my improved bit-brace. Fig. 2 is a side elevation of the opposite jaw, also showing its inner face. Fig. 3 is a perspective view of the complete brace; and Fig. 4 is a side view of the clamping-screw bolt.

The main portion of my brace consists of the two clamp-jaws A and B, which are solidly united together at *c*, and from that point to the farther side of the jaws they spring slightly apart, as seen in Fig. 3. This divided portion of the arm-like formation from the jaws proper to and beyond the point *c* constitutes the lower or horizontal arm of the bit-stock, of which the brace is an integral part.

The two jaws A and B are provided each with a tapering V-shaped groove, as shown, adapted to receive therein, when placed opposite to each other, as in Fig. 3, the end of the tool-handle, and they are also provided with a smaller groove, of like form, to adapt them to hold a very small tool between them. The two sides of the said smaller groove are more particularly shown in Figs. 1 and 2.

A rectangular-shaped hole, *o*, is made quite through the jaw A, and the outside of said jaw, around the border of said opening, is countersunk, to receive the projecting borders

of the convex-shaped head of the screw-bolt D, said borders being made to project from the sides of the head opposite the flat sides of the bolt, so that when said bolt is placed in said opening *o* its head will be flush with the outer surface of the jaw, and its convexity will conform to that of the outer surface thereof.

The jaw B has formed in it, also, an opening, *o'*, of like form to opening *o* in jaw A, for a portion of the way through it, when its shape is adapted to that of the flat portion of bolt D, between the line *x x*, across said bolt and the base of its screwed portion, and terminates at the outside of said jaw in a round hole, *o''*, adapted to let the said screwed portion of said bolt pass quite loosely through it.

The bolt D is made of the form shown in Fig. 4, and provided with an opening, *n*, through it, as there shown, and of such a thickness as adapts it to fit the openings in jaws A and B, above described, and a thumb-nut, *h*, is fitted to its screwed end.

The opening *n* through bolt D is of such form and located at such a point in its flat portion as to cause it, when the bolt is placed through the jaws A and B in an operative position, as in Fig. 3, to coincide with the form of the tool-shank grooves in the jaws, and to offer no impediment to the free insertion of a shank between them, said shank passing through and being encircled by the borders of the opening *n*.

The several above-described parts of my improved bit-brace are fitted together as shown in Fig. 3, and their operation is as follows, viz: It will be observed that the jaws A and B spring slightly apart, as seen in Fig. 3, when the thumb-nut *h* is not turned tightly against jaw B. This permits of the free insertion of the tool-shank between said jaws in such a position relative to the latter and to the screw-bolt and its opening *n* as is above described. When the tool-shank has been placed it is only necessary to screw the thumb-nut *h* firmly against jaw B to secure the two rigidly between the jaws. The position of bolt D in this brace relative to the parts of the jaws upon which the torsional strain is exerted upon them, caused by operating a boring or

other similar tool, causes its clamping force to be applied at the most advantageous point in the brace—that is to say, the force which resists the inclination of the jaws to spread, as the result of said torsional strain against them, is operative directly on a line through and at right angles to the axial line of the tool-shank clamped between the jaws, and is caused to be exerted in lines across the shank-grooves, between which the tool-shank stands, in such a way as to make it impossible for any torsional leverage of the shank against the sides of the grooves to spring the jaws apart in the least. This construction obviates the disadvantages appertaining to similarly-constructed jaws arranged to be clamped against

the tool-shank by a screw inserted through the brace transversely, and to one side of and at a considerable distance from the center of the jaws.

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What I claim as my invention is—

The combination, with the jaws A and B, adapted to receive the shank of a tool therebetween, of the screw-bolt D, extending through said jaws and provided with the transverse perforation *n*, substantially as and for the purpose set forth.

GARDNER L. HOLT.

In presence of—

WM. H. CHAPIN,
B. F. ADAMS.